

217/782-2113

FEDERALLY ENFORCEABLE STATE OPERATING PERMIT - NSPS SOURCE

PERMITTEE

Children's Memorial Hospital
Attn: Al Kruse
2300 Children's Plaza, Box 104
Chicago, Illinois 60614

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| <u>Application No.:</u> 04120018 | <u>I.D. No.:</u> 031600CPX |
| <u>Applicant's Designation:</u> HOSPITAL | <u>Date Received:</u> December 8, 2004 |
| <u>Subject:</u> Boilers & Generators | |
| <u>Date Issued:</u> August 17, 2005 | <u>Expiration Date:</u> August 17, 2010 |
| <u>Location:</u> 2300 Children's Plaza, 2430 Halsted and 700 West Fullerton, Chicago, Cook County, 60614 | |

This permit is hereby granted to the above-designated Permittee to OPERATE emission unit(s) and/or air pollution control equipment consisting of:

- 1 - 33.5 mmBtu/Hour Natural Gas Boiler with Distillate Fuel Oil Used as Backup
- 1 - 49 mmBtu/Hour Natural Gas Boiler with Distillate Fuel Oil Used as Backup
- 1 - 13.5 mmBtu/Hour Natural Gas Boiler
- 1 - 12.5 mmBtu/Hour Natural Gas Boiler
- 2 - 10 mmBtu/Hour Natural Gas Boiler
- 2 - 8 mmBtu/Hour Natural Gas Boilers
- 2 - 1500 kW Diesel Emergency Generators
- 1 - 275 kW Diesel Emergency Generator
- 1 - 200 kW Diesel Emergency Generator
- 1 - 750 kW Natural Gas Generator
- 1 - 500 kW Natural Gas Generator
- 1 - 18,896 Gallon Storage Tank
- 1 - 750 Gallon Storage Tank

pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 100 tons/year for NO_x, CO and SO₂). As a result the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of this source, as limited by the conditions of this permit, are described in Attachment A.
- b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.
- c. This permit supersedes the current permit(s) issued for this location.

- 2a. Boiler constructed, modified or reconstructed after June 9, 1989, and that have maximum design heat input capacity of 29 MW (100 million Btu per hour) or less, but greater than or equal to 2.9 MW (10 million Btu per hour), are subject to a New Source Performance Standard (NSPS) for Small Industrial - Commercial - Institutional Steam Generating Units, 40 CFR 60, Subparts A and Dc. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement.
- b. At all times, the Permittee shall maintain and operate the boiler, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions, as required by the NSPS, 40 CFR 60.11(d).
- c. Pursuant to 40 CFR 60.43c (c) and (d), no owner or operator of an affected facility (NSPS) that combusts oil and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.
- d. Pursuant to 40 CFR 60.42c (d), no owner or operator of an affected facility (NSPS) that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO₂ in excess of 215 ng/J (0.50 lb/million Btu) heat input; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph, pursuant to NSPS 40 CFR 60.42(c)(d). However, there is a more stringent state rule in Condition 4 and 9(a).
- 3a. No person shall cause or allow visible emissions of smoke or other particulate matter with an opacity greater than 30 percent, into the atmosphere from any emission unit other than fuel combustion emission units. The emission of smoke or other particulate matter from any such emission unit may have an opacity greater than 30 percent, but not greater than 60 percent for a period or periods aggregating 8 minutes in any 60 minute period provided such opaque emissions permitted during any 60 minute period shall occur from only one such emission unit located within 1,000 foot radius from center point of any other such emission unit owned or operated by such person, and provided further that such opaque emissions permitted from each such emission unit shall be limited to 3 times in 24 hour period pursuant to 35 Ill. Adm. Code 212.123.
- b. No person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period to exceed 0.15 kg of particulate matter per MW-hr of actual heat input from any fuel combustion emission unit using liquid fuel exclusively (0.10 lbs/mmBtu) pursuant to 35 Ill. Adm. Code 212.206.

4. No person shall cause or allow the emission of sulfur dioxide into the atmosphere in any one hour period from any new fuel combustion source with actual heat input smaller than or equal to 73.2 MW (250 mmBtu/hr), burning liquid fuel exclusively to exceed 0.45 kg of sulfur dioxide per MW-hr of actual heat input when distillate fuel oil is burned (0.3 lbs/mmBtu) pursuant to 35 Ill. Adm. Code 214.122(b) (2).
5. No person shall cause or allow the emission of carbon monoxide (CO) into the atmosphere from any fuel combustion emission source with actual heat input greater than 2.9 MW (10 mmBtu/hr) to exceed 200 ppm, corrected to 50 percent excess air, pursuant to 35 Ill. Adm. Code 216.121.
- 6a. The Permittee shall not utilize distillate fuel oil (Grades No. 1 and 2) in the boilers with a sulfur content greater than the larger of the following two values:
 - i. 0.28 weight percent, or
 - ii. The wt. percent given by the formula: Maximum wt. percent sulfur = $(0.000015) \times (\text{Gross heating value of oil, Btu/lb})$.
- b. Organic liquid by-products or waste materials shall not be used in these fuel combustion emission sources.
- c. The Illinois EPA shall be allowed to sample all fuels stored at the above location.
- 7a. Emissions and operation of the 33.5 mmBtu/hour, 49 mmBtu/hour, 13.5 mmBtu/hour, 12.5 mmBtu/hour, two 10 mmBtu/hour and two 8 mmBtu/hour natural gas boilers combined shall not exceed the following limits:

Natural Gas Usage: 99 mmscf/month, 495 mmscf/year.

| <u>Pollutant</u> | Emission Factor | Emissions | |
|-----------------------------------|-------------------|------------------|------------------|
| | <u>(Lb/mmscf)</u> | <u>(Tons/Mo)</u> | <u>(Tons/Yr)</u> |
| Nitrogen Oxide (NO _x) | 100.0 | 5.32 | 26.58 |
| Carbon Monoxide (CO) | 84.0 | 4.46 | 22.31 |
| Volatile Organic Material (VOM) | 5.5 | 0.29 | 1.46 |
| Sulfur Dioxide (SO ₂) | 0.6 | 0.03 | 0.16 |
| Particulate Matter (PM) | 7.6 | 0.40 | 2.02 |

These limits are based on the maximum boilers operations, standard emission factors AP-42, and maximum hours of operation (3,750 hours/year). Compliance with annual limits shall be determined on a monthly basis from a running total of 12 months of data.

- b. Emissions and operation of the 33.5 mmBtu/hour and 49 mmBtu/hour boilers combined using distillate fuel oil as backup shall not exceed the following limits:

Fuel Oil #2 Usage: 145,000 gallons/month, 290,000 gallons/year.

| <u>Pollutant</u> | <u>Emission Factor</u> | | <u>Emissions</u> | |
|-----------------------------------|------------------------|------------------|------------------|--|
| | <u>(Lb/1,000 Gal)</u> | <u>(Tons/Mo)</u> | <u>(Tons/Yr)</u> | |
| Nitrogen Oxide (NO _x) | 20.0 | 1.45 | 2.89 | |
| Carbon Monoxide (CO) | 5.0 | 0.36 | 0.72 | |
| Sulfur Dioxide (SO ₂) | 42.6 | 3.08 | 6.15 | |
| Particulate Matter (PM) | 2.0 | 0.15 | 0.29 | |

The emissions from the boilers are based on maximum boiler operations and standard emission factors AP-42. Compliance with annual limit shall be determined on a monthly basis from a running total of 12 months of data.

- 8a. Diesel fuel shall be the only fuel fired in the two 1,500 kW, 275 KW and 200 KW generators. The use of any other fuel shall require a revised permit. Emissions and operation of the two 1,500 kW, 275 kW and 200 kW emergency generators shall not exceed the following limits:

| <u>Total Diesel Fuel Usage</u> | | | |
|-------------------------------------|------------------------|-----------------------|------------------|
| <u>(Gallons/Month)</u> | | <u>(Gallons/Year)</u> | |
| 2,075 | | 12,450 | |
| <u>Pollutant (Total Both Units)</u> | <u>(Lbs/1,000 Gal)</u> | <u>(Tons/Mo)</u> | <u>(Tons/Yr)</u> |
| Nitrogen Oxide (NO _x) | 54.28 | 1.454 | 8.72 |
| Carbon Monoxide (CO) | 12.33 | 0.330 | 1.98 |
| Volatile Organic Material (VOM) | 2.05 | 0.055 | 0.33 |
| Sulfur Dioxide (SO ₂) | 1.49 | 0.040 | 0.24 |
| Particulate Matter (PM) | 1.99 | 0.053 | 0.32 |

These emissions are based on standard emission factors AP-42, the use of diesel fuel, and operating limit of 150 hours per year. Compliance with annual limits shall be determined from a running total of 12 months of data.

- b. Natural gas shall be the only fuel fired in the 750 kW and 500 kW generators. The use of any other fuel shall require a revised permit. Emissions and operation of the 750 kW and 500 kW emergency generators shall not exceed the following limits:

| <u>Natural Gas Usage</u> | | | |
|-------------------------------------|--------------------|---------------------|------------------|
| <u>(mmscf/Month)</u> | | <u>(mmscf/Year)</u> | |
| 0.11 | | 0.62 | |
| <u>Pollutant (Total Both Units)</u> | <u>(Lbs/mmBtu)</u> | <u>(Tons/Mo)</u> | <u>(Tons/Yr)</u> |
| Nitrogen Oxide (NO _x) | 3,258 | 0.218 | 1.31 |
| Carbon Monoxide (CO) | 387 | 0.030 | 0.18 |
| Volatile Organic Material (VOM) | 129 | 0.006 | 0.04 |

These emissions are based on standard emission factors AP-42, the use of natural gas, and operating limit of 150 hours per year. Compliance with annual limits shall be determined from a running total of 12 months of data.

9. This permit is issued based on negligible emissions of volatile organic material (VOM) from the storage tanks. For this purpose, total emissions from the storage tanks shall not exceed nominal emission rates of 0.1 lbs/hour and 0.44 tons/year.
- 10a. The Permittee shall maintain monthly and annual records of the following items:
 - i. Natural gas usage of each boiler and each generator (mmscf/month and mmscf/year);
 - ii. Fuel oil usage of each boiler and each generator (gallons/month and gallons/year); and
 - iii. Sulfur Content (weight %).
- b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.
11. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA's Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of the exceedance or violation and efforts to reduce emissions and future occurrences.
12. Two (2) copies of required reports and notifications concerning equipment operation or repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811

Fax: 217/782-6348

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and one (1) copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
9511 West Harrison
Des Plaines, Illinois 60016

Telephone: 847/294-4000

It should be noted that this permit incorporates the operation of the emission units from I.D. numbers 031600CPX and 031600FWF.

If you have any questions concerning this permit, please call George Kennedy at 217/782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

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cc: Region 1

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from this facility operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. The resulting maximum emissions are well below the levels (e.g., 100 tons/year NO_x and 25 tons/year for volatile organic material) at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be less than predicted in this summary to the extent that less material is handled and control measures are more effective than required in this permit.

| | | E M I S S I O N S (Tons/Year) | | | | |
|-----------------------|-----------------|----------------------------------|-----------|-----------------------|-----------|-------------|
| <u>Emissions Unit</u> | <u>Fuel</u> | <u>NO_x</u> | <u>CO</u> | <u>SO₂</u> | <u>PM</u> | <u>VOM</u> |
| 8 Boilers | Natural Gas (6) | 26.58 | 22.31 | 0.16 | 2.02 | 1.46 |
| | #2 Oil (2) | 2.89 | 0.72 | 6.15 | 0.29 | ---- |
| 6 Generators | Natural Gas (2) | 1.31 | 0.18 | ---- | ---- | 0.04 |
| | #2 Oil (4) | 8.72 | 1.98 | 0.24 | 0.32 | 0.33 |
| 2 Storage Tanks | | ----- | ----- | ----- | ----- | <u>0.44</u> |
| Total Emissions | | 39.50 | 25.19 | 6.55 | 2.63 | 2.27 |

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